Dr. Linda R. Coney

225 VanderWerf Hall, Hope College
Holland, Michigan 49422-9000
Phone: (616) 395–7507, (630) 740–6704
Email: coney@hope.edu

Education:

2000: **Ph.D., Physics, University of Notre Dame**
Thesis: "Diffractive W and Z Boson Production in $p\overline{p}$ Collisions at $\sqrt{s} = 1800$ GeV."
1997: **M.A., Physics, University of Notre Dame**
1993: **B.S., Physics and Mathematics (Magna Cum Laude), Hope College**

Academic Positions:

Current: Visiting Assistant Professor of Physics, Hope College
2001-2006: Postdoctoral Research Associate, Columbia University
2000: Postdoctoral Research Associate, University of Notre Dame
1993-2000: Graduate Student, University of Notre Dame
1995-2000: Research Assistant, 1994: Arthur J. Schmitt Presidential Fellow

Awards:

Arthur J. Schmitt Presidential Fellowship, University of Notre Dame, 1993-1994
Douwe B. Yntema Prize in Physics and Senior Sigma Xi Award for Physics, Hope College, 1993
Phi Beta Kappa Honor Society, Hope College, 1993

Professional Committees:

2004-2005: APS Neutrino Study Booklet Committee
2002-2003: Organizing Committee, NuFact03 Workshop
2001: Young Physicist Forum Committee member, Snowmass 2001
1997-1999: Fermilab Users' Executive Committee member
Chair of Quality of Life and Younger Physicists Issues Subcommittees

Research Experience:

- MiniBooNE Experiment (E898), member 2001-present:
  - Measured pion production on MiniBooNE target at HARP and reduced systematic uncertainties on MiniBooNE neutrino flux.
  - Led Columbia University HARP group and guided tasking of graduate students.
  - Tested and developed diagnostic system to monitor accelerator devices in Booster and identify instabilities. Integrated into permanent data logger to allow long term machine studies.
  - Drove project to use ramped dipole correctors in Booster to control beam motion. Used new correctors to reduce beam losses near sensitive equipment.
  - Authored technical documents using Latex, MS Powerpoint, and MS Word.

  - Experienced in UNIX, LINUX, Microsoft Windows NT, VMS, Fortran, C++, JAVA, HTML, GEANT4, ICOOL, emacs, CVS, LSF, and data analysis languages (ROOT, PAW).

- HARP (Hadron Production Experiment at CERN - PS214) member 2001-present:
  - Enabled measurement of cross section backgrounds by identifying need for empty target data for each HARP target.
  - Ensured high data quality by calculating appropriate beam settings and monitoring spectrometer detectors.
  - Led HARP Production Group which provided data and Monte Carlo samples to entire experiment for calibration and analysis purposes.
  - Measured pi^+ production cross section in p-Al and p-Be collisions which were used to reduce systematic error in K2K and MiniBooNE neutrino fluxes, respectively.
  - Coordinated data management on three continents while maintaining data quality and consistency of production methods.Developed system to enable remote-site HARP analysis at Fermilab, Los Alamos National Lab, and universities in Europe and Japan.
  - Created accurate material geometries for HARP GEANT4 simulation code.
  - Analyzed, tuned, and validated simulations of HARP threshold Cerenkov detector.
- DØ Experiment, member 1995-2004:
  - Identified first diffractive Z boson production in $p\overline{p}$ collisions.
  - Measured diffractive component of W and Z boson production in $p\overline{p}$ collisions.
  - Discovered miscalculation of reconstructed photon energies which degraded calibration of jet response. Implemented photon energy scale correction which dramatically improved DØ jet response calculation.
  - Directed Central Fiber Tracker(CFT) fiber lightguide quality control project.
  - Developed testing procedure using X-ray source and scintillating fiber ribbons to measure production quality of lightguides fabricated for CFT.

Teaching Experience:

- Undergraduate level General Physics class lecturer and instructor for associated laboratory classes.
- Supervised REU undergraduate students working on accelerator physics.

Communications and Administration:

- Organized and hosted NuFact03 conference at Columbia University.
- Served as elected member of Fermilab Users' Executive Committee (UEC).
- Addressed members of Congressional staff, Presidential Budget Office representatives, and Department of Energy personnel to promote high energy physics research done Fermilab.

- Planned and ran 1998-1999 annual Fermilab Users' Meeting.

Outreach Activities

- 2005: Hosted Fermilab Girl Scout Workshop with over 100 girls for second year in a row.
- 2005: Judged middle school science fair at Neuqua Valley High School in Naperville, IL.
- 2003: Led Girls Scientific Salon at Fermilab involving junior high school girls in hands-on physics experiments.
- 2002: Created and performed interactive demonstration program on Light and Color for grade school students.
- 2001-2002: Developed National Science Foundation proposal with YPP to create and distribute particle physics instructional kits for primary school students.

Selected Publications:

- "Measurement of the production cross-section of positive pions in p - Al collisions at 12.9 GeV/c", M. G. Catanesi *et al.*(HARP Collaboration), Nuclear Physics B **732**, (2006).
- "Observation of diffractively produced W and Z bosons in $p\bar{p}$ Collisions at $\sqrt(s) = 1.8$ TeV", V. M. Abazov *et al.*, Phys. Lett. B **574**, 169 (2003); hep-ex/0308032, FERMILAB-PUB-03-233-E.
- "Hard Single Diffraction in $p\bar{p}$ Collisions at $\sqrt{s} = 630$ and 1800 GeV", B. Abbott *et al.*, Phys. Lett. B **531**, 52 (2002); FERMILAB-Pub-99/373-E; hep-ex/9912061.
- "Determination of the Absolute Jet Energy Scale in the DØ Calorimeters", B. Abbott *et al.*, Nucl. Instrum. Methods Phys. Res. A**424**, 352 (1999); FERMILAB-Pub-97/330-E; hep-ex/9805009.
- "Probing hard color-singlet exchange in $\overline{p}p$ collisions at $\sqrt{s}$=630 GeV and 1800 GeV.", B. Abbott *et al.*, Phys. Lett. B **440**, 189 (1998); FERMILAB-Pub-98/285-E; hep-ex/9809016.
- "Fermilab Booster Orbit Correction.", (L. Coney, J. Monroe, W. Pellico, and E. Prebys), in *Proceedings of the 2003 Particle Accelerator Conference* ed. J. Chew, P. Lucas, and S. Webber.